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ABSTRACT

The School Renewal Network, an interactive knowledge base on school reform, was created to provide opportunities for educational practitioners to have an audience for, make notations of, and reflect upon practical wisdom for the teaching culture. To appraise the network's effectiveness in meeting its goals and the nature of its interactions, data derived from all 1990 network computer log files as well as 34 of 40 surveys and 103 interviews with participants were analyzed. Findings indicated that a public and private audience does exist on the network; however, practitioners did not find the audience accessible or compelling enough to be useful for notations and reflections. Results also indicated that interactions needed to be wider and deeper with more feedback for the network to have an impact on its participants. Seven tables are used to illustrate data analysis. Appendices A through C contain the diagram of the network's organization, PSI-NET Conference and session structure, and survey of participating practitioners. (26 references) (EJS)

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Audience in School Renewal: Electronic Networking In Schools, Across Schools, and Across Groups

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Audience, Notation, and Reflection:
Toward Shared Practical Wisdom
Symposium presented at the annual meeting of the American Educational Research Association, Chicago, April 1991

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Symposium Rationale

One of the goals of educational reform is to increase the professionalism of teaching and teachers. One aspect of teacher professionalism is placing educational decision making as close as possible to student needs, that is, with teachers in local schools and classrooms (Bentzen, 1974; Carnegie Forum, 1986; Sarason, 1971). Another aspect of professionalism is possession of knowledge and skill (Griffin, 1991). Professionals use their knowledge base to inform local decision making (McClure, 1989), improve teaching strategies (Shulman, 1987), and make curriculum decisions (Griffin, 1991). Both the Holmes Group (1986) and the Carnegie Forum (1986) assert that such a knowledge base exists, is growing, and should be used to directly inform teaching practice and to frame teacher education.

Although the teaching and learning knowledge base is developing, problems exist in defining it (Shulman, 1987). According to Shulman, teachers must have knowledge of content, pedagogy, curriculum, contexts, and educational ends. This knowledge is derived from four major sources:

> 1) scholarship in content disciplines; 2) the materials and settings of the institutionalized educational process (for example, curricula, textbooks, schools organization and finance, and the structure of the teaching profession); 3) research on schooling, school organization, human learning, teaching and development, and the other social and cultural phenomena that affect what teachers do; and 4) the wisdom of practice itself (p. 8).

The act of teaching can be thought of as continuous knowledge utilization through processes of reasoning, action, and reflection.

Problems continue to exist, however, in using the knowledge base in school settings (Fleming, 1988). While teachers use their experience to mediate between generalized findings and local contexts (Schnesk & Rackliffe, 1989), few environmental and organizational supports exist for doing or sharing such mediation. Shulman suggests that the wisdom of practice source may be the most difficult to pursue because teachers have no audience to speak to or with and no system of notation to record a history of practice. If, as Schnesk and Rackliffe suggest, practical wisdom mediates between the general and the specific, the sharing of practical wisdom may be crucial to the use of the knowledge base. Audience and notation are needed in order for teachers to share practical knowledge and connect it with other knowledge sources. However, simply listening or reading are probably not sufficient to change thinking and practice. Shulman discusses the need for reflection and discussion. It appears that audience, notation, and reflection may be necessary and interdependent in using the knowledge base to improve teaching.

Audience

Merriam-Webster (1974) defines audience as 1) an opportunity of being heard and 2) an assembly of listeners (p. 60). The term "audience" implies opportunities for sharing, being heard, and listening to others. In the present context then, audience means opportunities for teachers to share their practical wisdom and to

learn from the practical wisdom of others. Practical wisdom as a source of knowledge is difficult to pursue because opportunities for sharing it are limited.

It is important for teachers to develop a culture of learning in which to share practical wisdom. Children learn about 13 words per day for 15 years in the context of ordinary communication. By contrast, teaching isolated vocabulary words in "almost useless in practice" (Brown, Collins, & Duguid, 1989). Just as children learn vocabulary best in the context of ordinary communication, teachers learn their craft best in the context of their milieu: school and classroom. But, whereas children have many opportunities for ordinary communication to build their vocabularies, teachers build their teaching knowledge in isolation or have only ritualized meetings, classes, and conferences.

Teachers lack a peer audience; that is, they have few opportunities to share practical wisdom with each other. The school day is seldom structured to enable common planning or professional development time. The building is structured so that teachers spend the majority of their time in individual classrooms. Staff meetings tend to deal with business items rather than pedagogical issues. Teachers may see each other most frequently in the faculty lounge where teacher talk often focuses more on personal or social topics than schooling issues. Inservice training tends to be infrequent, conducted by external experts, and include little peer interaction.

Teachers lack other audiences as well. Professional development opportunities beyond the school are rare and often occur on personal time. The wisdom of practice voice is often undervalued as being too unscientific, too atheoretical, too subjective, or even too self-interested.

Notation

Equally important as audience is notation, a way to record practical wisdom for the teaching culture. Merriam-Webster (1974) defines notation as the act, process, or method of representing data. Shulman (1987) discusses the teaching profession's "individual and collective amnesia, the consistency with which the best creations of its practitioners are lost to both contemporary and future peers" (p. 11). Thus, teaching has no recorded history of practice. Each teacher reinvents the wheel, so to speak. Acts, processes, and methods of notation would help teachers record, reflect, assess, and pass the wisdom of practice on to others.

One conceptualization of notation for sharing practical wisdom includes plans, units, action research, and literature interpretation (Gillingham, 1990). Plans serve to record particular implementation strategies and principles; units record subject matter and curricular outlines and sequences; action research records contextually-based problem solving; and literature interpretation records the mediation of generalized findings in specific settings. While this conceptualization focuses on what tend to be individual acts, it does not address

the shared acts common in a collaborative, decision making culture.

Notation must be multidirectional. Information given to an audience may not be used, particularly if it goes in only one direction (Castle, Johnson & Livingston, 1990). Sustained interactivity may be crucial to mediating research and practice (Castle, Livingston, Trafton, & Obermeyer, 1990). If so, the audience must be interactive and multidirectional.

Reflection

Reflection is integral to developing and sharing practical wisdom because it is through reflection that professionals learn from experience. Reflection allows one to pause, consider the extent to which an activity had a theoretical basis, and was effective (Zeichner & Liston, 1987), and think about how it might be modified or improved. However, if the reflection is to result in more than transient learning, documentation, analysis, and discussion are needed (Shulman, 1987). Thus, audience, notation, and reflection are integrally interwoven and interdependent to the sharing of practical wisdom and the improvement of teaching. Unfortunately, the environmental and organizational conditions within schools do little to support such activity.

Electronic Networking

Over the last several years, a variety of electronic networks has been instituted for teachers. Some place students in learning situations over diverse regions; some involve teachers in online discussion groups or conferences; others serve as forums for sharing ideas. Networks allow teachers to reach

out to others and reduce isolation, enabling greater communication than is typical in educational settings. They enable teachers to open the culture of teaching to a wider group for both instruction and professional development. Networks facilitate information flow. They can provide access to the mundane (e.g., school records), the mentor (e.g., professors, researchers, libraries), the practical (e.g., experienced teachers), each other (e.g., peer support), and the community (e.g., parents). The advantages of using a network for the sharing of practical wisdom include setting one's own time, having an extended time to reflect and review before responding, and collaborating with others not based in the school building.

The potential exists for electronic networks to expand the teacher audience, provide a forum for recording practice, and serve as a reflective community. This symposium looks at audience, notation, and reflection within an electronic networking community of teachers and researchers. Has the network provided an opportunity for teacher and practitioner interaction, for recording practice, and for reflective community? What is the potential of networking in this regard?

The first paper looks at peer and researcher audience and the participants' perspectives on the Network's value. The second paper addresses the nature of notation by looking at the recording of practice. It also discusses the potential of networking to enhance reflection. In order to understand the contextual factors that affect the sharing of practical wisdom, two sites were selected for cases. Wells Junior High belonged to

the NEA Mastery In Learning project for two years before the Network was started. Prior to the Network, they showed evidence of developing a collaborative, reflective culture with shared decision making. Network usage and its impact were limited. In contrast, Lassiter Middle School joined the Mastery In Learning Project at the same time the Network began. For Lassiter, the Network was regularly used, and provided a widely expanded audience.

Context of Study and Description of Network

Mastery In Learning Project

The School Renewal Network began within the context of the NEA Mastery In Learning Project (MIL), a site-based, faculty-led school reform initiative (MIL, 1988; 1989). Twenty-six demographically representative schools across the country participanted.

Local faculties designed their own renewal agendas: proceeding through initial assessment, visioning, and goal setting; creating the skills, attitudes and inclinations necessary for sustained inquiry into the assumptions and practices that define their school; exploring improvement options and designing specific programs or interventions; and then moving from fragmented activities to comprehensive change. After five years, the MIL schools became advisors to newly created programs, yet they remain the core participants in the computer network.

Research-Practice Interaction

MIL has been unique among school reform projects in that sustained attention was given to using the knowledge base for informed decision making, making research-practice interaction the norm rather than the exception. Problems existed, however, in using research in school settings and in sharing the largely uncodified wisdom of practice. Using the knowledge base is a task for which teachers often have too little time, access, and understanding (Berliner, undated) and too few models that link research to contextual factors affecting the change process. To empower teachers to use a constantly growing knowledge base requires (among other things) contextually-sensitive research utilization models (Shulman, 1987).

During its initial stages, the MIL staff and school faculties attempted to address these difficulties (Castle, Rackliffe, & Ward, 1988; Livingston & Castle, 1989). Location, organization, and summarization of research and resources on each school's priorities were provided through the central Project office; each school had a site-based consultant to assist with research access and use; and each school had a substitute bank to provide time for teachers to read research, discuss the evidence, consider its implications for their school, and create action plans for innovation. Even with these resources, particular obstacles continued to exist. Once the problem of access to information was diminished, the problem of use became the obstacle. Mediation between general findings and specific situations seemed to be the key.

Sustained practitioner interaction was needed across a broad geographic area to share practical wisdom; researcher-practitioner interaction was needed to use the knowledge base in complex, contextually rich, yet diverse, settings. The MIL practitioners were eager to learn with and from researchers; and we suspected that researchers could learn with and from these highly-engaged practitioners about research in the practical world. This interactivity seemed crucial to integrating research and practice for the purpose of reforming schools. Because of the geographically diverse area covered by the MIL sites (20 states from Maine to Hawaii), the MIL staff began to investigate the possibility of using technology to connect teachers and researchers.

Although computer conferencing was fairly new, we were able to find sufficient evidence of its documented impact to further investigate the possibilities of an electronic network (Harasim & Johnson, 1986; Morrison, 1987; Office of Technology Assessment, 1988; Phillips & Pease, 1985; Toles, 1983). Most studies found that additional contact outside the network needed to be maintained for the establishment of a truly interactive community and such contact was built into the Network.

The IBM/NEA School Renewal Network

The primary purpose of the School Renewal Network is to create an interactive knowledge base on school reform by a community of actively-engaged practitioners, researchers, staff developers, and disseminators (see Network evaluation design in

Appendix A). The Network is designed to address the following needs:

a) location of and access to research and other resources;

b) interaction between researchers and practitioners around the use and generation of research on school reform innovations;

c) dialogue about issues central to school reform work;

d) data gathering and analysis;

e) efficient communication.

The School Renewal Network began in October, 1988. The Network is an asynchronous teleconferencing and messaging system using PCs. It began during the third year of MIL with a training session in Washington, DC. The structure for the database was based on the commonplaces of schooling: Teaching, Learning, Curriculum, and School Culture. At this point, the schools had identified their improvement priorities and had spent at least one year using the knowledge base to investigate those priorities and design action plans. Network participants included the 26 MIL schools, 7 federally-funded research laboratories and centers, 7 major universities, and 7 schools from other networks (The Coalition of Essential Schools, The National Network for Educational Renewal, and the NEA Learning Laboratories).

IBM provided hardware, software called PSInet (People Sharing Information Network), and technical support. MIL provided personnel, overhead, demonstrations, initial training, information resources, and server maintenance. Each site

provided a Network coordinator, training for faculty members, and telephone costs.

The second year we obtained grant funding from the Secretary's Fund for Innovation in Education at OERI to further develop the Network. Planning for Network revision began at MIL's annual fall conference and was completed at a Network conference at the IBM facilities in Boca Raton, Florida. The additional (OERI) funding enabled us to focus the research-practice dialogue by selecting and defining 10 critical topics and engaging a researcher, staff developer, or disseminator for each topic. The critical topics include: Parent Involvement, At-Risk Students, Curriculum Redesign, Positive School Climate, School/Classroom Organization, Instructional Strategies, Thinking, Networking/Technology, Restructuring, and Authentic Student Assessment. Each practitioner site chose two or three topics on which to focus--topics in which they had experience and expertise, as well as ongoing action projects. Each topic was defined and delineated at the Netork conference by the practitioners along with the researcher responsible for that particular topic. After the meeting, the conference and session structure was changed to reflect the ten topics and their definitions (see Appendix B). In addition, the grant provided for a consultant to the researcher group and one to the practitioner group to facilitate the interaction among participants in each role.

Audience

Method

Participants. Network participants include practitioners and researchers, plus NEA support staff and IBM technical assistants. The current symposium focuses on the researcher and practitioner sites that are supported by the OERI grant. These sites constitute the core of the Network and receive a small monthly stipend and Network meeting expenses (non-OERI schools do not receive stipends or conference expenses). The study participants include 28 schools (25 MIL sites, 2 Coalition for Essential Schools sites, and one NEA Learning Laboratory district); 10 researchers (3 at regional labs, 1 at a Center, 5 at universities, and one at the National Foundation for the Improvement of Education); and the Consultant to the Practitioners and the Consultant to the Researchers. A site (especially a practitioner site) generally represents a single workstation with a group or faculty of users.

Data Collection and sources. The analysis covers one full year of Network operation from January 1,1990 through December 31, 1990. Although it represents the Network's second year of operation, it is the first year of the OERI funding which enabled researcher participation and a Network meeting. The analysis begins with the first month following that meeting (December, 1989) in which researchers and practitioners met together to define the topics and discuss their expectations, needs, and impending interactions. In other words, the analysis covers the first year of researcher and practitioner networking.

Data were derived primarily from two sources: 1) computer log files; and 2) a survey of the OERI practitioners, researchers, and consultants. Log files are created daily by the Network server. These data enable us to look at patterns of usage for each workstation. Daily network activity involves two forms of communication: messages and papers. Messages are "private" in that the writer sends it to another specified site. Papers are "public" in that the writer directs a paper to a topical session (such as site-based decision making) and all workstations that have "joined" that session receive the paper. The log files analysis reports number of messages and papers sent and received.

A survey was designed to obtain information about who communicates with whom, the nature of the interactions, use of information at the workstation site, and the effect of the information. One version was sent to the practitioner sites and another version was sent to the researchers and consultants. (The surveys are provided in Appendix C). Of the 40 possible respondents, 34 returned the survey for a response rate of 85%. Of the 28 practitioner sites, 23 returned the survey for a practitioner response rate of 82%. All but one researcher returned the survey for a researcher response rate of 92%.

A secondary data source includes interviews conducted with the Mastery In Learning schools in April/May, 1990. Five people were interviewed in each of the 25 schools: the principal, a current leader, a past leader, a current non-leader participant, and an uninvolved person. The total number of interviews equals

103; eight of these were Network coordinators. Twelve questions were asked during the interviews, one regarding the Network: "Has the faculty's work been influenced by information received over the computer Network?" The data from this question were used to supplement the survey data in regard to the effect of the information from perspectives other than that of the Network coordinator.

Data analysis. The log files were analyzed by workstation for number of messages sent, number of messages received, number of papers sent, and number of papers received. Monthly and yearly totals, averages, and ranges were calculated for each workstation, for the practitioner and researcher groups, respectively, and for the Network as a whole.

Surveys were analyzed separately for the researcher and practitioner groups. Survey responses were tabulated where appropriate. For the open-ended questions, responses were listed by question and categories were developed; then responses were tallied according to the category system. Data are reported by number of respondents and percent of respondents. The total possible number of practitioner respondents is 23; researchers is 11.

Results and Interpretation

Network as audience. One way to look at the opportunity for expanded audience is to assess the amount of communication taking place on the Network between practitioner sites, between researchers, and between practitioner and researcher groups.

When asked to respond to the question "**With whom are you 'networking'? With which groups to you interact and how often?**" 57% (n=13) of the **practitioners** indicated Occasional interaction with other OERI schools and 39% (n=9) indicated Frequent interaction (see Table 1). Interactions with researchers occured Occasionally for 43% (n=10) of the schools, Frequently for 30% (n=7), and Seldom for 26% (n=6). They interacted with non-OERI schools Seldom (n=6, 65%) or Occasionally (n=9, 39%). The practitioners interacted with NEA staff Occasionally (n=9, 39%), Seldom (n=8, 35%), and Frequently (n=6, 26%). Twenty-six percent (n=6) did not interact with IBM staff, but 52% (n=12) did Occasionally and 22% (n=5) did so Frequently. The only groups that did not receive a Frequent response were non-OERI schools and IBM staff. The only group which did receive a Not At All response was IBM staff.

The **researchers** report networking with OERI schools Frequently (n=10, 91%) (see Table 2). They interacted with other schools Seldom (n=6, 55%), with other researchers Frequently (n=9, 82%), with NEA staff Occasionally (n=6, 55%), and with IBM staff Seldom (n=7, 64%). The only group to receive no Frequent response was IBM staff. The only groups to receive any Not At All response were non-OERI schools and IBM staff. Thus, at least monthly interactions occur between most practitioners, between most researchers, between practitioners and researchers. To a lesser extent, between both groups interacted with the NEA staff. Considerably fewer interactions occured with non-OERI schools and with IBM staff.

During the year a total of 4,598 messages were sent: 2,359 were sent by practitioners, 1,379 were sent by researchers, and 859 were sent by the consultants. Practitioner sites sent an average of 7 messages per month, but the range is >1 to 58, indicating great variability. Six sites averaged less than one message per month, while 6 sites averaged more than 10 per month on the average. Sixty-one percent of the practitioner sites sent and received approximately the same number of messages with the remainder sending about half as many as they received.

Researcher sites averaged 12 messages sent per month. The range was 2 to 56. No researcher averaged less than 1 message, and 3 averaged more than 10 per month. Eighty percent of the researchers sent and received about the same number of messages, with the remaining 20% sending about half as many as they received. The two consultants sent an average of 36 messages per month indicating their facilitative role.

Practitioners received an average of 11 messages per month with an average range among workstations of 3 to 55. Researchers received an average of 15 messages per month with an average range of 3 to 51. The consultants received an average of 30 messages per month. Because messages can be sent to more than one workstation, messages sent and messages received vary.

A total of 2,535 papers were sent during the year: 1,376 were sent by practitioners, 892 by researchers, and 267 by the consultants. The practitioner sites sent an average of 4 papers per month, with a range of >1 to 23; again, showing great variability. Nine sites averaged fewer than 1 paper sent per

month and 2 sites averaged more than 10. The researchers sent an average of 7 papers month with an average range of >1 to 26. One researcher averaged less then 1 paper per month and 3 averaged more than 10. The consultants sent an average of 7 papers per month.

Practitioners received an average of 225 papers per month, with an average range of 103 to 428 on the average. Researchers received an average of 176 papers per month, with an average range of 14 to 236. The consultants received an average of 235 papers per month. Because papers are sent to sessions, the number of papers received depends on the sessions to which a particular workstation belongs.

Thus, it appears that an audience did exist both within and across groups for private and public interaction. However, considerable variation occurred in the extent to which the audience was accessed by particular sites with some low users, some high users, and the majority somewhere in the middle.

To better determine who the audience actually was, we asked for information regarding to whom messages were sent (see Table 3). Practitioners report sending approximately 50% (range = 15% - 90%) of their messages to other OERI schools, 25% (range = 0% - 80%) to the researchers, 21% (range = 0% - 60%) to NEA staff, 4% (range = 0% - 18%) to IBM staff, and 4% (range = 0% - 15%) to other schools (non-OERI). When the practitioners were asked to indicate the group to which they sent the most messages 64% (n=14) reported other OERI schools. When asked about the second highest group, 50% (n=11) indicated the researchers and

27% (n=6) indicated other schools. Thus, the practitioners sent about half of their messages to the other OERI schools and about a quarter to the researchers.

The researchers reported sending 52% (range = 9% - 80%) of their messages to OERI schools, 29% (range = 5% - 60%) to other researchers, 11% (range = 0% - 30%) to NEA staff, 5% (range = 0% - 15%) to non-OERI schools, and 3% (range = 0% - 10%) to IBM staff. When the researchers were asked to which group they send the highest percentage of messages, 82% (n=9) indicated the OERI schools. The second highest group was reported by 60% (n=6) to be the other researchers.

These data indicate that practitioners find their private audience most frequently in other schools followed by messaging with the researchers and NEA staff. Researchers send messages most often to schools and then to other researchers. This indicates quite an interactive audience across groups, although variation in amount of use is also evident.

The respondents were asked about the content of messages. Eighty-two percent (n=18) of the practitioners say they sent messages to other schools requesting information; 54% (n=12) sent messages asking for professional advice and an equal number for personal/social interchange; fourteen percent (n=3) sent messages for scheduling an event. Single sites reported sending messages for sharing information, troubleshooting, a classroom curriculum project, or thanks. They sent messages to researchers for professional advice (n=17, 77%), requesting information (n=16, 72%), personal/social interchange (n=8, 36%), or scheduling an

event (n=2, 9%). Single sites also reported sending messages for sharing information or monitoring a discussion. Thus, the practitioners communicated with each other and with the researchers primarily for information and advice. More personal/social interaction occurred within the practitioner group than between practitioners and researchers.

The researcher messages to the OERI schools were about professional advice (n=7, 64%), requesting information (n=7, 64%), personal/social interchanges (n=3, 27%), or scheduling an event (n=2, 18%). Single respondents also listed responding to questions, maintaining professional contact, professional dialogue, and testing ideas. Researcher messages to other researchers included professional advice (n=6, 60%), requesting information (n=6, 60%), personal/social interchange (n=5, 50%), and scheduling an event (n=3, 30%). Additional responses included responding to questions, professional contact, and testing ideas. Again, messaging for professional advice and information were high between researchers and between researchers and practitioners. As with the practitioner group, more personal/social interaction occurred within the group than across groups.

When asked why they sent a private message instead of a public paper, the practitioners responded that the content was not of broad interest (n=19, 83%), the content was private (n=16, 70%), they used a message because they were responding to a message (n=12, 52%), or that they were unsure which it should be (n=4, 17%). Two respondents said they sent a message because it

was urgent and would be seen more quickly than a paper. Two respondents said they sent messages instead of papers because of shyness. Single respondents said they sent messages asking if something should be sent as a paper, requesting that a resource be mailed, when the content was specific to a site, or when a groups of messaged responses would later be summarized in a paper.

Researchers indicated they send messages because the content is private (n=9, 82%), the content was not of broad interest (n=9, 82%), or they were responding to a message (n=8, 35%). Additional reasons included using messages for professional contact, personal sharing, or advise.

In general, messages were sent when the content was private or not of broad interest. The practitioners who stated that they sent messages because they were not sure probably reflects the difficulty of knowing what IS of broad interest. Some shyness is also worth noting in terms of audience.

One of the open-ended questions asked about the nature of **message content**. The **practitioners** listed encouragement and support (n=4), requests for ideas, information, or help (n=3), thanks (n=2), practical or business matters, welcomes, congratulations, ordering items to be sent through the mail, contacts with sites or researchers. One described messages as the "icing on the cake," making one feel part of the Network family. **Researchers** described message content as requests, support, specific advice, personal responses, and non-dialogic

exchanges (n=1 each). Thus, messages included various kinds of personal support and information assistance.

Overall, an audience of practitioners and researchers, and to a lesser extent NEA staff, exists on the Network. However, the practitioner sites did not find this audience equally accessible or compelling. The more private functions of the Network centered on personal support and on particular information assistance. Messages appear to serve a support function and a nuts-and-bolts assistance function that underlie the more public functions of information sharing and contextual application. (Network "papers" are analyzed in the second symposium paper.)

Within-school audience. Each practitioner site has one workstation in the school that serves the entire faculty (7 sites also have a workstation in a teachers home). Because of this, it is important to look at the within-school audience for the network information.

The practitioners were asked the extent to which various schools groups used the computer workstation (see Table 4). (Each school has an identified Network coordinator, most of whom have attempted to involve other teachers in computer use). The vast majority (n=19, 83%) responded that Some classroom teachers use the computer. Forty-three percent (n=10) responded that Some instructional staff use the computer, but an equal number said that No instructional staff use it. About 29% (n=6) responded that Some principals, administrators, and students use the computer, but in most cases, None of them use it. In most

schools, teachers constitute the largest user group with approximately one quarter of the teachers using the computer. Instructional staff use the computer in half the schools to Some extent, and in a quarter of the sites, administrator and students use the computer Some.

Perhaps more important than who uses the computer itself is who **receives and uses information** (see Table 5). When asked how many people receive the information (without accessing it directly from the computer), the numbers are higher. Fifty-six percent (n=13) of the practitioners said that Most of the classroom teachers receive Network information. Twenty-six percent (n=6) indicated that Some receive information, and 17% (n=4) stated that Many receive information. Thus, 3/4 of the schools report that Many or Most of the teachers receive Network information. For instructional staff, 43% (n=10) responded that Some receive information and 30% (n=7) said that Most of them receive information. Support staff is fairly evenly divided between None, Some, and Most. Some or None of the parents and students receive information. Other groups were listed as receiving Some information including the school board (n=2), other schools (n=3), the superintendent and other district personnel (n=3), task forces or committees outside the building (n=2), other networks, state-level workshops, and former students. Information appears to be widely distributed particularly among classroom teachers.

When asked how the **information is disseminated** or distributed, it is clear that site coordinators use a variety of

strategies (all listed more than one strategy) and that a wide range of strategies is used across the schools. In 96% (n=22) of the schools, the coordinator distributes selected items to particular individuals. Seventy-eight percent (n=18) of the schools have notebooks with Network printouts in accessible locations (such as the library of faculty room). Seventy-four percent (n=17) of the coordinators make reports to the faculty based on Network information. Forty-eight percent (n=11) of the schools design workshops or incorporate Network information into workshops. Thirteen percent produce (n=3) summaries or digests. Nineteen sites (83%) listed additional dissemination strategies. These include: meetings to discuss information (n=7, 30%), posting information on a bulletin board (n=4, 17%), face-to-face conversations (n=3, 13%), distributing information beyond the school (n=3, 13%), giving items to the whole faculty, using release time, and assigning an individual to monitor each conference (n=1 each).

The survey included an open-ended question about who uses the computer and the information and how the information is shared. The coordinator (n=15) and teachers (n=11) were most often mentioned. Six schools mentioned that administrators used the information. Five sites said that "everyone" uses the information. Other responses included some staff (n=2), the librarian (n=1), and committees (n=1). In terms of how the information is shared, the highest response was that the information is distributed and used by individuals (n=10). Other responses included notebooks (n=4), routing papers (n=3),

committees (n=2), teachers have particular responsibilities for monitoring a conference (n=2), and bulletin boards (n=2), with single responses for discussion groups, use when need arises, and use information to answer questions.

The researchers were asked for their perspectives (if any) of information use in the schools, based on their Network and face-to-face conversations, and occasional school visits (2 or 3 of the researchers have been in one or more of the schools). The most common observation was that the coordinator disseminates the information (n=7), corroborating the practitioner responses. Two perceive little evidence of widespread discourse in the schools, although three others observed that involvement is increasing over time. One researcher felt that information use as "pretty effective" in the schools and another felt that much of the information was read. Other single responses included: coordinator does most of the work; notebooks, meetings, and training sessions are used for information sharing; and resource materials are the most used aspect of the information.

The researchers were asked about information use in their sites (universities, regional labs, research centers, and offices). Three reported that they were the primary information users. Three others said they share information with their colleagues. One shares information with non-Network schools. One reported sharing colleagues' work through the Network.

It appears that in most schools many teachers receive Network information. It is not clear to what extent the information gets used, to what extent it results in discussions

regarding practice, or to what extent the receivers respond with contributions to the Network.

Interaction. In addition to looking at the opportunity for and existence of audience, we wanted to look at the nature of the interactions within that audience. One survey question listed words that potentially described the relationships between practitioners and researchers prior to their first meeting in December 1989 (see Table 6). The practitioners listed Willingness to Learn (n=16) highest; then Uncertainty (n=15), Friendliness and Mutual Respect (n=13 each), Collegiality (n=10), Uneasiness and "They are not of my world" (n=4each), Two Camps (n=3), Caring (n=2). Five additional responses were added including: stratified, not sure, courteous, not sure what to expect, mixed bag of personalities, and a cooperative attitude. They were asked the same question, but asked to describe relationship in December 1990 after two meetings and a year on the Network. Practitioner responses included: Willingness to Learn and Friendliness (n=20 each), Mutual Respect (n=19), Collegiality (n=18), Caring (n=18), Uncertainty (n=2), and Two Camps and "They are not of my world" (n=1each). Fourteen additional descriptors were added: supportive (n=2), appreciative (n=2), open, community, cooperative, closer, us not we/they, unity, courteous, friendly, sensitive, focussed on making it work, not sure. Increases occurred in Caring (+16), Collegiality (+8), Mutual Respect (+6), Willingness to Learn (+4), and Friendliness (+4). Decreases occurred in Uncertainty (-13), Uneasiness (-4), "They are not of my world (-3), and Two

Camps (-2). For the practitioners, the researcher-practitioner interactions became more collegial and comfortable, although some unease remains.

The researcher group, in describing relationships in December 1989, identified Uncertainty (n=7), Willingness to Learn (n=5), Uneasiness and Friendliness (n=4 each), Mutual Respect (n=3), Collegiality, "They are not of my world" and Two Camps (n=2 each), and Caring (n=1). In addition they listed curiosity, variety, and individual differences. In December 1990 they described relationships as: Friendliness (n=9), Collegiality and Mutual Respect (n=8 each), Caring (n=7), and Uncertainty and "They are not of my world" (n=2each). They added community (n=2), erasing the gap, and individual differences. Increases occurred in Caring and Collegiality (+6 each), and Friendliness and Mutual Respect (+5 each). Decreases occurred in Uncertainty (-5), and Uneasiness and Two Camps (-2 each). Willingness to Learn and "They are not of my world" remained unchanged. For the researchers, as for the practitioners, interactions became more collegial and comfortable with some uncertainty remaining.

Open-ended questions were asked regarding interaction between practitioners and between the practitioners and researchers. The practitioners described their interaction with each other as helpful (n=3), friendly (n=3), improving (n=2), informative (n=2), close, growing, grateful, useful, pertinent, exciting, concerned, professional, supportive, inspiring, and engaging. The adjectives comprise a very positive list.

The **nature** of their interactions included sharing (n=13), same-issue interactions (n=6), questioning (n=5), exchanging information and suggestions (n=4), same-level interactions (n=3), community-building (n=3), making personal connections (n=2), encouraging new users (n=2), responding to questions (n=2), sharing across groups and levels (n=2), sharing what has worked, challenging current practice, understanding commonalties, personalization, forming interest groups, and providing immediate access to research. Their interactions functioned to discuss issues and information, and to build personal and group connections. Some indications of the sharing of practical wisdom are evident.

The **substance** of their interaction concerned information (n=8), experiences, (n=3), new ideas (n=3), everyday classroom activity (n=2), what works and doesn't work, practical strategies, action research, resources, hopes, dreams, and discoveries. One described the interactions as mostly chit-chat. Again, the substance includes both information and personal issues with some attention practical wisdom.

Interactive **processes** were described as questions, then answers (n=4); sharing, questioning, group problem-solving; sharing, adding, then asking for more detail; moving from how-to to theoretical/philosophical; presenting an initial request, receiving satisfactory information, then branching out to other topics. One respondent described the interactions as an "interchanging web" which probably sums it up quite well.

The effect of these interactions is particularly important because we want to know what difference the interactions have made. The practitioners list of effects included more information, more risktaking, using information to make decisions, trying new ideas, and understanding the power of what they as teachers do. These effects are important in terms of improving practice and increasing professionalism, but it is difficult to know hoe widespread they are yet..

Problems, however, included time (n=3), uneven activity among schools (n=3), need to involve new users, varying quality, variation in amount of involvement within a school, and the need for computers at home to increase use. One respondent linked the amount of within-school exchange to the school's stage in the restructuring process. These factors limited the effect of the interactions.

The researchers also commented on their observations of practitioner interaction. Their observations included: they describe problems and issues, share effective practices and programs, request specific information, willing to share, specificity and focus in sharing practices have increased, they share common problems, do problem-solving, most sustained interaction goes beyond immediate schooling issues, issues involve policy/practice dilemmas. Respondents also observed that interaction is brief and sporadic, concrete and practical, the desired response is answers, and that both interaction and content vary. These items show evidence of inforamtion use and

the sharing of practical wisdom, but also indicate the need for more sustained interaction among more sites.

The researchers were also asked to describe the interactions occurring within their group. They described their interactions as supportive (n=7), interactive, positive, effective, rewarding, friendly, considerate, and welcoming. These adjectives indicate positive and useful interactions.

The nature of their interactions included encouragement (n=7), requests/questions (n=3), helping each other by responding in conferences besides their own (n=3), adding additional perspectives (n=3), giving advice on how to help the schools (n=2), dialogue on intellectual issues, answering questions, messages connecting the personal and intellectual, challenging each other, observing as well as participating. Two responded that there is not much interaction between researchers. Single respondents also indicated that the content varies considerably, that hot topics or issues generally come from the researchers, that trust and respect have led to risktaking, and the importance of the face-to-face interactions. The interactions appear to focus on support and assistance with the researcher role, and with adding information or perspectives to the conversation. As in the partitioner group, there are differences in participation and content.

Both groups were asked to comment on the interaction between researcher and practitioner groups. The practitioners described these interactions as informative (n=7), friendly (n=6), supportive/encouraging (n=5), responsive (n=5), helpful (n=5),

questions and answers (n=4), inspiring (n=2), improving (n=2), engaging, thorough, enjoyable, relevant, numerous, thoughtful, concerned, professional, variable, interesting, active, practical, useful, immediate, standoffish at first, crossing K-12 concerns, comfortable, working together, caring, no gap, and valuable. One practitioner described the interactions as varying, while another describe the concerns as common but the expertise as varying. Again, the words describe positive, useful interactions.

The practitioners described the nature and function of the interactions as providing resources (n=4), questioning (n=3), giving and taking (n=2), responding, looking at issues in a new light, providing insights, forming small groups between and within groups, dialoguing, providing first-hand, up-to-date research, using research perspective to validate or invalidate practice, researchers helping practitioners to implement sound educational practice, and "talking" not just "writing". The responses show evidence of access to research as a Network function, as well as interaction concerning the use of research to improve practice.

The practitioners list the effects of the researcher-practitioner interactions as diminishing the gap (n=2), increasing confidence, increasing acceptance, changing from discomfort with research jargon to respect for research findings, increased capacity to access the other group, development of a more common language, and fitting information into school-based initiatives. One practitioner stated that some polarization

still exists between the groups, but that the researchers have become valued and trusted friends and colleagues. These indicate positive attitudinal and functional effects.

One problem cited concerned varying levels of involvement within each group. Two practitioners asked questions about the researchers' role in modeling and stimulating interaction. One stated that when the researcher is active and responsive, the dialogue is good, but when the researcher takes a back seat not much happens.

The researchers described the researcher-practitioner interactions as high quality (n=2), open (n=2), good, effective, genuine, sustained, intitiating, reacting, nonjudgemental, real, collaborative, caring, stimulating, inspiring, challenging, valuable, comfortable, and trusting. Again, the adjectives indicate positive, useful interactions.

The researchers described the nature and function of the interactions as responding (n=5), questioning (n=3), increasingly equal (n=3), supporting (n=2), interaction of questions and information (n=2), dialogue on issues, requests, ordering materials, concern for new sites, both social and intellectual, growth in breadth and depth, researchers learning from practitioners, and bonding. One researcher described the interactive process as researchers reflecting and asking for more detail; another described it as practitioners requesting, describing issue, then researchers clarifying, providing information, extending the discussion, and stimulating dialogue. One researcher observed group difference with the researchers

talking more theoretically and the practitioners talking in more concrete, practical, immediate, and situation terms; although there is varity along these lines within each group. The responses indicate a two-way interaction with some differences in terms of role, content, and perspective.

Their concerns included variation in participation (n=4), some status differences (n=2), need for more feedback on the effect of the information, and some discussions going unfinished.

Both groups were asked about the changes they have observed and future changes they would like to see in the researcher-practitioner interaction. The practitioners observed several changes: from fear to ease/comfort (n=4), greater ease resulting from the meetings (n=3), lessening of the gap including "no more ivory tower" (n=3), increased understanding of the researcher role, an expanded knowledge base, more depth in listening and responding, more personal and friendly interactions, and researchers feeling less need to give a perfect answer. They observed increased comfort and community, increased understanding of the other group, and increased knowledge.

For the future, individuals said they would like to continue developing interaction cycles in both directions, conduct research in addition to sharing research, reduce gaps in involvement, complete all user abstracts, see more encouragement, continue the annual meetings, and have more summarizing of dialogue by the researchers. The practitioners would like to see better dialogue, more involvement, more face-to-face meetings,

and more summarizing. It is also interesting to note that one respondent would like to conduct as well as share research.

The researchers did not answer this question in terms of changes made and needed so much as observations that might imply needed changes. Individual responses included: practitioners many find research language inaccessible, there is little disagreement and controversial issues are not widely discussed, maybe there should not be a researcher-practitioner distinction, practitioners need more confidence in their capacity for action, more facts than issues are shared, and the desired response is answers. Stated needs included: wider and deeper interaction, more feedback, and increased connectedness. Other observations included: the practitioners are "in charge" of Network conversation, the researchers and some practitioners serve as information pipelines, and the "Round Robin" technique was good. Thus, the researchers would like to see a deeper, more issue-oriented dialogue including "agreeing to disagree," greater practitioner confidence in acting upon what they know, more feedback about the information, and fewer group distinctions.

Impact. The effect of this opportunity for audience is an essential part of the networking picture. The survey asked two questions of each group regarding the effect of the Network.

The practitioner responses indicated that classroom teachers had Often been affected by the information in half of the sites (n=12, 52%) (see Table 7). A quarter of the sites indicted that teachers were Frequently effected (n=6, 26%) and another quarter indicated that teachers were Seldom affected (n=5, 22%). Every

school said that the information had affected at least Some of the teachers. For instructional staff, the highest response was in the Often affected category (n=9, 39%) with the remaining responses fairly evenly spread over the other categories. Four sites (n=4, 17%) reported No effect on instructional staff. Support staff were Not affected in half the sites (n=11, 48%), Seldom affected in a quarter of the sites (n=7, 30%), and Often affected in 5 sites (n=5, 22%). The effect on principals is spread fairly evenly over Frequently (n=8, 35%), Often (n=7, 30%), and Seldom (n=6, 26%) affected with only 1 site reporting No affect on the principal. The other administrators category shows the opposite pattern from principals with 9 sites (n=9, 39%) reporting No effect. Students are Not (n=9, 39%), Seldom (n=8, 35%), or Occasionally (n=5, 22%) affected with one site reporting a Frequent effect. Parents are Not (n=11, 48%), Often (n=6, 26%), or Seldom (n=5, 22%) affected. Others listed as affected to some extent included central office (n=3), teachers and principals in other buildings (n=3), state or district committees (n=2), another network (n=1), and former students (n=1). Thus, approximately 3/4 of the sites report that classroom teachers, instructional staff, and principals are often or frequently affected by the Network information, while approximately one quarter of the schools report effects on support staff, other administrator, students, or parents. While this is encouraging for the within school audience, it does not tell us about the nature of the effect.

This question generated a number of comments or examples. Several schools listed topics that had been useful: cooperative learning (n=3), at-risk students (n=2), curriculum projects such as gathering rocks and sand from other geographic regions (n=2), decision making and consensus (n=2), governance structures, equality, librarians, grouping, specialists, grants, mainstreaming, whole language, peace, and democracy and discipline. One site reported that a local college had expressed interest in joining the Network; one reported using the Network to plan a consultant visit; another stated that teachers now regularly go to the Network for information; one said that the Network had changed attitudes toward technology; one reported the Network feeding another network; and 2 sites mentioned particular researchers as helpful. Thus, the topical information appears to have had an effect and attitudes toward research and researchers have been effected.

One of the open-ended questions concerned how Network involvement had affected the school. On the positive side, practitioner responses included access to current information and resources (n=3), helpfulness to steering committee (n=2), developed dialogue in the district (n=2), and institutionalization of site-based decision making (n=2). Other responses included increased willingness to share, catalyst for reading research, a major source of new energy, unity with other schools, more risktaking, and the helpfulness of the peace discussion to teachers and students. One site reported that the Network had an indirect effect on the school. On the negative

side, 3 sites reported "not much" effect. While the numbers are not high, access, helpfulness, district dialogue, and institutionalization represent powerful effects on the process of school renewal. Other responses detail changes in attitudes and motivation. The 3 sites that reported "not much" effect are worth investigating further to identify the intervening factors.

Statements addressing the effect of the Network were also gleaned from other survey questions. The practitioners indicated that interactions with each other have resulted in more information than questions (the first year the Network included more questions than information), more risktaking, more use of information in decision making, more trying new ideas, and teachers understanding the power of what they do. They indicated that the researcher-practitioner interaction had decreased the gap between the groups (n=2), increased confidence, increased acceptance, increased their capacity to contact researchers, developed a more common language, enabled them to fit information into their improvement initiatives, and a change in practitioner attitudes from discomfort with research jargon to respect and value for the findings. One respondent said that some polarization still exists, but that the researchers have become valued and trusted friends and colleagues. In general, the responses refer to in increased use of and comfort with the knowledge base because of the researcher-practitioner community. While one researcher noted that practitioners lack of confidence in acting, one teacher noted an increased understanding of the

power to act. Another interesting shift identified here is moving from jargon as a barrier to appreciation of findings.

To supplement the data on effects, a Network-related question from previously conducted interviews was reviewed. One hundred and three interviews (8 of whom were Network coordinators) were asked "Has the faculty been influenced by information received over the computer Network?" The response was Yes in 35 instances, a Qualified Yes in 39 instances, a Qualified No in 10 instances, and a Definite No in 4 instances with 11 Don't Knows and 4 No Response. No one school responded No across the interviews, but some schools were split in their responses. Thus, about 3/4 of the schools reported being influenced by the Network. This finding is particularly powerful since the vast majority of interviewees were not Network coordinators.

The researchers were asked for their perceptions of the Network's effect. Responses included trying new ideas, broadening knowledge, providing resources, providing motivation, implementation of new programs based on information, and the initiation of conversations that began on the Network then spread and continued in the school. One stated that the effect depends on the information's relevance to an immediate issue. Another said that the effects are long-term. In addition, two researchers replied not knowing (and wanting to know) the effect of the information and another reported that the computer sat idle a good bit of the time in one particular school. They see

more access to and use of information, some of which has directly resulted in implementation.

The researcher group also responded in terms of the Network's effect on themselves. They reported gaining a grasp on school realities, more non-electronic researcher-practitioner interaction, changing research to include more outreach. These seem important to strengthening the link between research and practice.

Problems. Although the survey did not request data on problems involved with the Network, several surfaced. The practitioners observed time as the most pressing problem (n=8). Other problems included variety in staff involvement in the schools (n=5), variety in amount of involvement by schools (n=2), variation in amount of researcher involvement and questions about the researcher role in encouraging dialogue (n=2), need for computers in teachers' homes to increase use, information overload, need to involve new sites, difficulty in convincing teachers of the relevance of research to classroom practice, shyness, variation in quality of contributions, less involvement from those sites that have not been involved in the face-to-face meetings, first year was spent just learning the software, personnel and budget cuts, and having to learn a different format for each computer system. As always, practitioner's non-instructional time for a myriad of tasks is at a premium. Throughout the data concern was expressed for more active Network involvement within school faculties, and more participation by less active schools and researchers.

Variations in use. Because variations in amount of use by schools was cited several times as a concern, it may be instructive to look at high- and low-contributing sites to determine intervening factors. Four sites were identified as low-contributors in both messages and paper activity. One site described the Network's effect as considerable, but cited time as the major problem. Although they received a large quantity of information and reported use of the information, they apparently have not internalized the need to contribute or the notion of the Network as two-way interaction. They are primarily information receivers. A second school chose as its coordinator a technology person who saw the coordinator's job as training others, but not disseminating or contributing. This site's Network activity has increased considerably since the November meeting in which a fairly reflective practitioner participated. He has contributed extensively and involved others since then. Involvement was a matter of finding the right person. A third school chose two technologically-literate coordinators who train teachers and disseminate information, but do not contribute. Their survey response indicates an attitude toward the Network as a one-directional source for answers. Although the schools were asked to select topics for which they had "experience and expertise," this school gave up responsibility for topics they knew about in favor of topics they wanted to learn about. Their survey also reported they could never get in contact with their researcher. Of the 4 low-contributing schools, this is the only one that reported "not much" Network effect. It may be that the effect

was minimal because they did not use it, or it may be that they did not use it because they did not perceive any potential effect. Network use at the fourth school is probably a victim of internal difficulties related to their school renewal work. After the first Network meeting, their Mastery In Learning Project was placed on hold, the leader left the school, and the new leader was unable (not through lack of effort) to restart it. They choose not to send a representative to the annual meeting, and have since dropped out of MIL and the Network.

Three respondents said that the Network had not effected their school. One is mentioned above. A second school is an average contributor. They cite time as a problem and envy those schools with a workstation at home. They report that the researchers are doing a good job, but that some practitioners use the Network for personal journalling (preferring answer to dialogue?). They see the researchers as the "leaders" of the Network. The see the information as not affecting their goals because they are "hung up" on internal attitudes and processes for decision making. The third school had developed an interactive and reflective culture prior to the Network, so an external audience may not have been perceived as necessary. The experience of this site is detailed in one of the cases in this symposium.

Other sites were low-contributors in either messages or papers, but not both. Those who sent few messages may not feel as connected to the community as others. Those who sent few papers made not have found their public voice or internalized the

importance of two-way interaction in creating a dialogue. One of these sites has apparently "found its voice" since the last meeting.

Three schools sent high numbers of messages and papers, yet the sites vary considerably. One school has two reflective coordinators, is highly engaged in school restructuring efforts in which the whole faculty is involved, and they report a faculty-level internalization of using research. The second site is active primarily because the coordinator is an active contributor. Use of the information and contributions from other faculty members have been limited. The third school chose a technology expert as the coordinator. The coordinator is quite knowledgeable about the school's change initiatives and is masterful in engaging other practitioners to reflect and contribute. All 3 of these sites have home workstations. Of the schools that sent lots of messages, one is in a non-contiguous state, so the personal connections have been valuable. They contribute an average number of papers. Another school assists individual schools with technological problems; they contribute a below-average number of papers. The third school messages alot with researchers and staff, developing confidence in the public voice slowly throughout the year.

The coordinator seems particularly important, either as a contributor or as one who can engage others in contributing. A conceptualization of the Network as a two-way interaction is also important, and may correlate with a conceptualization of research as more than answers or of research and practical wisdom as

carrying authority. The existence or development of confidence in the practical voice is an additional factor. Ongoing school restructuring efforts also seem important. Time is mentioned as a problem by high- and low-contributing groups, but the high contributors have found ways to manage and create time; a home workstation was part of the solution.

The researcher group had no low message contributors and only one low paper contributor. The los paper contributor did not return the survey, so no interpretive data is available, but a general lack of involvement seems likely. Two of the researchers were high contributors in messages and papers (by the same criteria as the practitioners). One is a disseminator and one is a disseminator/staff developer. Their institutions expect and support the use of research by practitioners so they may have materials, experiences, skills, characteristics, or others kinds of institutional support that facilitate their work. (The second paper looks at researcher differences as one factor in dialogue.)

Conclusions

The traditional image of an audience involves a group of people sitting in rows with a speaker at the front. The speakers have an opportunity to be heard and the group has an opportunity to listen. The School Renewal Network is both similar to and dissimilar from that kind of audience. The speaker has an opportunity to be heard, but there are many speakers and they do not so much "stand up front" as stand up within the assembled group. There is an assembly of listeners, and some mostly listen, but many speak as well. The Network as audience is one

in which speakers listen and listeners speak. It is not so much a lecture series with passive recipients, as it is a group discussion that is active and interactive. However, unlike a traditional discussion group, many people are talking at once. Both public and private conversations are occurring simultaneously. People move in and out of smaller group conversations, sometimes making it difficult to sustain a discussion. Not everyone finds this audience equally purposeful or compelling. Some participants see themselves as receivers, contributing little, and causing others to express concern. For those with little exposure speaking within an audience, the experience can cause discomfort or silence. Even so, most people value this interactive audience and perceive considerable personal or professional effect resulting from their participation. Finally, the audience, unlike that recorded by Webster's definition, only occasionally meets face-to-face: its primary mode of operation is electronic.

The data analyzed in this study enable us to see that an audience does exist between practitioners, between researchers, and between practitioner and researcher with the NEA staff and school-related groups included. The audience is both public and private. Participants access this opportunity for audience to varying degrees. They also conceptualize its purpose differently, some seeing it as forum for sharing and problem-solving, others as an information source, and a few finding no compelling purpose. There is variation in both quantity and quality of contribution. Still, the opportunity for a peer

audience beyond the walls of the school or office has been useful to most participants in terms of personal connections, locating and sharing information, and, to a lesser extent so far, sharing practical wisdom. The opportunity for a non-peer audience has been powerful as well, with both practitioners and researchers talking, listening, and learning.

One seemingly important aspect of this audience is a strong sense of community, of collegiality and collaboration. The face-to-face meetings were important in decreasing uncertainty and increasing trust. Considerable support and encouragement occurs for asking questions, trying new ideas, and sharing experiences and information.

One expressed concern involves the extent to which the audience has expanded--or not expanded--within the school. Use varies from primarily the coordinator to "everyone," with a majority of schools reporting that many teachers, principals, and instructional staff have been affected. Coordinators have developed a wide range of strategies to disseminate information and encourage contributions, some personal and impersonal (however, faculty involvement is higher than it was a year ago). The Network may have generated discourse within some schools, but it does not appear to be widespread within most faculties. Environmental, organizational, and attitudinal conditions work against sych discourse. Perhaps the Network's impact on attitudes toward research and confidence in sharing practical wisdom will ripple through school cultures.

The interactions occurring within this audience are described in generally positive terms as helpful, supportive, collegial, and increasingly comfortable, although some unease still exists. The interactions concern topical information, personal issues, accessing and using research, and practical experiences and problems. Differences exist among participants in expertise, role, and perspective. While these differences are sometimes problematical, they also contribute to the richness of the interactions and impact upon their usefulness.

The Network's effects have been felt by many, although not all, of the participants. Access to information, an expanded knowledge base, and an increased appreciation for and use of research affect the teacher as an informed decision maker. Effects have been felt in both the process and content of school restructuring. Evidence exists of using the knowledge base and practical wisdom to improve practice. One of the most powerful statements came from a teacher who said the Network had created a greater understanding of the power to act on what is known. Other teachers appeared to discover their voices and begin to trust the legitimacy of practical wisdom as a knowledge source. These effects contribute directly or indirectly to teacher professionalism (Griffin, 1991), school-based restructuring (Hollifield, 1991), and improvement of practice.

The audience is not without problems, of course. Finding time for managing, reflecting, and contributing is challenging. Many find the uneven levels of actively among the sites a matter of concern (although I gather from conversations with other

networks, that participation in this one is higher than most). Uneven levels of involvement within schools may be problematic if research and practical wisdom are to affect whole-school changes. One of the most often mentioned, and probably most important, challenges for the participants and staff involves improving the dialogue through more interactive cycles (which include questions, theory, research, descriptions of practice, questioning, reflection, and action research), more summarization, greater depth, and more sustained lines of inquiry.

We are learning some things about what facilities participation in an audience such as this: a coordinator that reflects and/or contributes, engages others in reflecting and contributing, and uses both impersonal and personal strategies for dissemination and involvement; a sense of belonging and connectedness; a perceived need to share, a concept of the potential of two-way interaction, and confidence in the practical voice; face-to-face interactions and other "high touch" strategies to supplement electronic interactions; and "a cooperative attitude toward entering these uncharted waters " (practitioner survey).

We should remember that the Network as an audience of and for practitioners and researchers has been in operation for only one year. As one researcher said, "The relationships are excellent; the Network needs about five more years to reach its full potential."

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Table 1

Amount of Practitioner Networking to Same and Other Groups

	Networking							
	None		Seldom		Occasional		Frequent	
Group	n	%	n	%	n	%	n	%
OERI Schools	0	0	1	0	13	57	9	39
Non-OERI Schools	0	0	15	65	9	39	0	0
Researchers	0	0	6	26	10	43	7	30
NEA Staff	0	0	8	35	9	39	6	26
IBM Staff	6	26	12	52	5	22	0	0

Table 2

Amount of Researcher Networking to Same and Other Groups

	Networking							
	None		Seldom		Occasional		Frequent	
Group	n	%	n	%	n	%	n	%
OERI Schools	0	0	1	9	0	0	10	91
Non-OERI Schools	1	9	6	55	2	18	2	18
Researchers	0	0	0	0	2	18	9	82
NEA Staff	0	0	2	18	6	55	3	27
IBM Staff	2	18	7	64	2	18	0	0

Table 3

Percentage of Messages Sent to Same and Other Groups

	% of Messages Sent			
	By Practitioners		By Researchers	
Group	Average	Range	Average	Range
OERI Schools	50	15-90	52	9-80
Non-OERI Schools	4	0-20	5	0-15
Researchers	25	0-80	29	5-60
NEA Staff	21	0-60	11	0-30
IBM Staff	4	0-18	3	0-10

Table 4

Amount of People Using the Computer by School Group

	Amount							
	None		Some		Many		Most	
Group	n	%	n	%	n	%	n	%
Classroom Teachers	0	0	19	83	2	9	2	9
Instructional Staff	10	43	10	43	2	9	0	0
Support Staff	17	77	2	9	2	9	1	5
Principal	7	35	6	30	1	5	6	30
Other Administrators	13	62	6	29	1	5	1	5
Students	15	71	6	29	0	0	0	0
Parents	19	83	4	17	0	0	0	0

Table 5

Amount of People Using Information by School Group

	Amount							
	None		Some		Many		Most	
Group	n	%	n	%	n	%	n	%
Classroom Teachers	0	0	6	26	4	17	13	56
Instructional Staff	3	13	10	43	2	9	7	30
Support Staff	9	41	7	32	0	0	6	27
Principal	1	5	11	50	0	0	11	50
Other Administrators	10	45	8	36	0	0	4	18
Students	10	45	11	50	0	0	1	5
Parents	13	56	9	39	0	0	1	4

Table 6

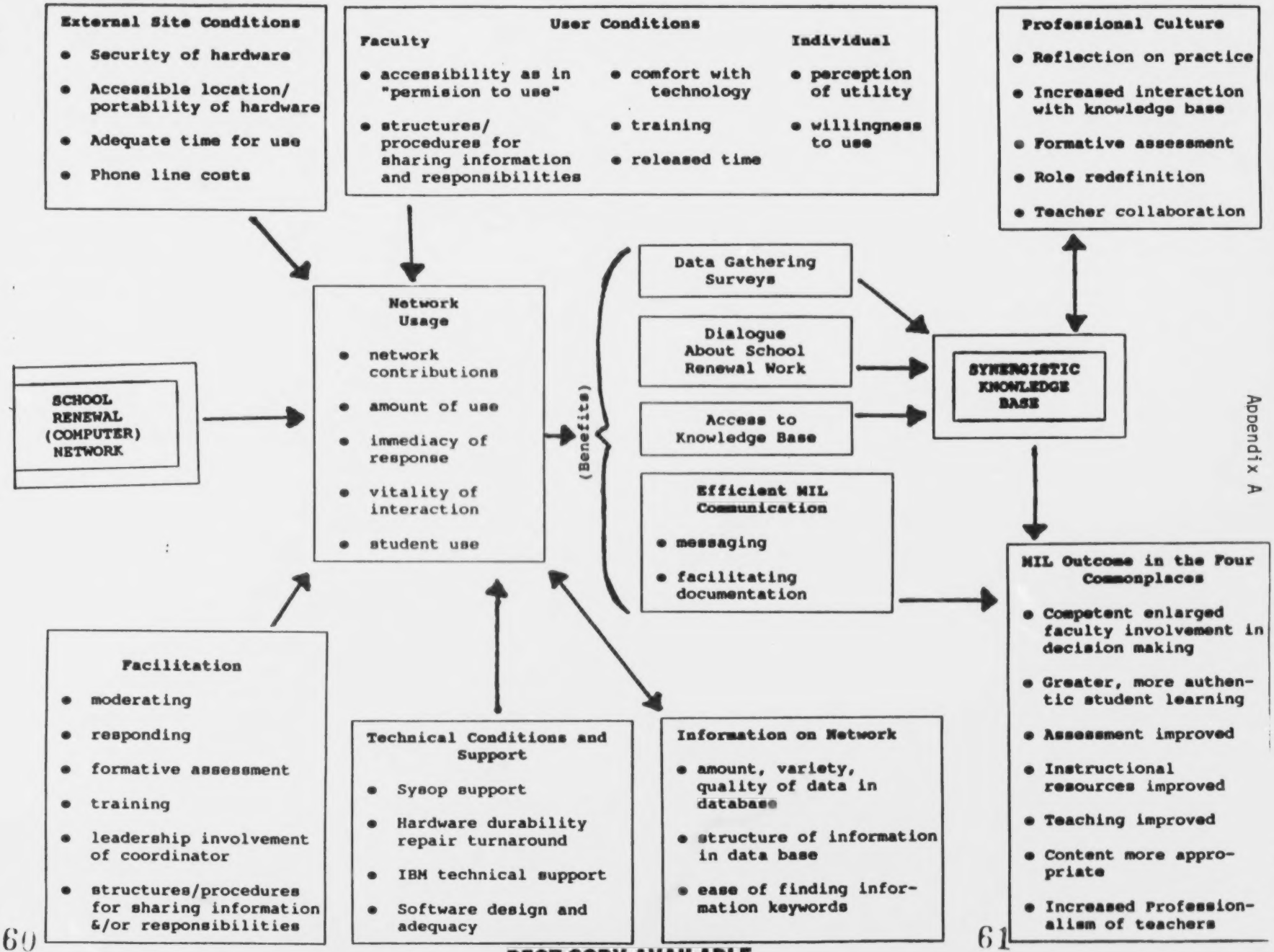
Change in Relationships Between Practitioners and Researchers Over a Year

	Change in Relationships					
	Practitioner Response			Researcher Response		
Descriptors	12/89	12/90	+/-	12/89	12/90	+/-
Uneasiness	4	0	-4	4	2	-2
Friendliness	13	20	+7	4	9	+5
Uncertainty	15	2	-13	7	2	-5
Respect	13	19	+6	3	8	+5
Caring	2	18	+16	1	7	+6
Willingness to Learn	16	20	+4	5	5	0
Collegiality	10	18	+8	2	8	+6
"They are not of my world"	4	1	-3	2	2	+4
Two Camps	3	1	-2	2	0	-2
Irrelevant	0	0	0	0	0	0

Table 7

Effect of Information by School Group

	Effect							
	None		Seldom		Often		Frequently	
Group	n	%	n	%	n	%	n	%
Classroom Teachers	0	0	5	22	12	52	6	26
Instructional Staff	4	17	5	22	9	39	5	22
Support Staff	11	48	7	30	5	22	1	4
Principal	1	4	6	26	7	30	8	35
Other Administration	9	39	7	30	4	17	3	13
Students	9	39	8	35	5	22	1	4
Parents	11	48	5	22	6	26	0	0



Appendix A

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IBM/NEA MASTERY IN LEARNING SCHOOL RENEWAL NETWORK

PSI-NET CONFERENCE AND SESSION STRUCTURE
&
CRITICAL TOPICS IN DEPARTMENT OF EDUCATION GRANT

INFORMATION	
MIL	
NETWK-WIDE	(Network-Wide)
NETWORK-USE	
KEY-WORDS	
*AT-RISK-STU	(At-Risk Students)
ECHILD-ELEM	(Early Childhood/Elementary)
SECONDARY	
OTHER	
*CURRICULUM	
REDESIGN	
MATERIALS	
*ASSESSMENT	(Authentic Student Assessment)
OTHER	
*POS-SCH-CLI	(Positive School Climate)
DISCIPLINE	
STU-AS-WRKR	(Student As Worker)
OTHER	
*RESTRUCTUR	(Restructuring)
SITE-B-DEC	(Site-based Decision Making)
COLLEGIAL	(Collegiality)
VISIONS	
OTHER	
INSTR-STRAT	(Instructional Strategies)
*COOP-LNG	(Cooperative Learning)
*THINKING	(Critical Thinking/Metacognition)
OTHER	
*NET-TECH	
NETWORKING	
TECHNOLOGY	
*PAR-COM-INV	(Parent/Community Involvement)
PARTNERSHIP	
VOLUNTEERS	
HOME-HELP	
OTHER	
*SCH-CR-ORG	(School/Classroom Organization)
GROUPING	
CLASSRM-ORG	(Classroom Organization)
SCH-ORGANIZ	(School Organization)
STUDENT-USE	

*OERI Grant Critical Topics

IBM-NEA SCHOOL RENEWAL NETWORK

SURVEY OF PRACTITIONERS

Dear Network Participant:

We want to learn about three matters regarding the Network:

- *Who uses the computer; who uses the ideas/dialogue/information; how is material shared, how has your schools' involvement with the Network affected the school?*
- *What are the interactive patterns across schools in the network, with whom are schools interacting, what is the nature of the messages?*
- *What is the nature of the interactions between practitioners and researchers, have they changed, are there further changes in relationships and roles that need to be made?*

Knowing more about the answers to these questions will allow us to improve the network, build a case for continued support of this work, and contribute to better understandings of the usefulness of this endeavor in improving schools; e.g., data collected will be used in this years AERA papers. The researchers are receiving a similar survey.

Before responding to the items on the following pages, verify that the information below is correct. (if incorrect, please strike out and enter corrections.)

If you have questions, contact me at workstation BOB or call 202-822-7926. Please return your completed survey before January 27, 1991 in the enclosed envelope.

Bob McClure

Site:

Number of Messages Sent and Received December - July, 1989-90:

Number of Papers Sent and Received December - July, 1989-90:

Contact Person(s):

1989-90 Conference(s) Responsibility:

Person completing this survey if other than Contact Person _____

USES IN YOUR SCHOOL

1. Please provide a general indication of which groups use the IBM-NEA School Renewal Network computer by entering the appropriate word.

None
Some (1/4 of the group)
Many (1/2 of the group)
Most (More than 3/4 of the group)

a. Classroom Teachers _____

b. Other Instructional Staff _____

c. Support Staff _____

d. Principal _____

e. Other Administrators _____

f. Students _____

g. Parents _____

h. Others:

_____ _____

_____ _____

2. What ways do people receive information from the network if they are not users of the computer? Circle all that apply and, if you like, add a note of explanation:

a. Notebooks in a Central Location_____

_____

b. Summaries/Digests_____

_____

c. Workshops_____

_____

d. Individual Reports to Faculty_____

_____

e. Coorindator distributes selected items_____

_____

f. Other (specify)_____

_____

g. Other (specify)_____

_____

3. How many people from the various groups would you say are recipients of network information?

None
Some (1/4 of the staff)
Many (1/2 of the staff)
Most (More than 3/4 of the staff)

a. Classroom Teachers _____

b. Other Instructional Staff _____

c. Support Staff _____

d. Principal _____

e. Other Administrators _____

f. Students _____

g. Parents _____

h. Others: _____

_____ _____

_____ _____

4. Generally, what has been the effect of this information on these groups? Please circle the response that most nearly matches your perception. The ideas/dialogue/information from the IBM-NEA School Renewal Network has...

...Not affected members of this group
...Seldom affected members of this group
...Often affected members of this group
...Frequently affected members of this group

a.	Classroom Teachers	N	S	O	F
b.	Other Instructional Staff	N	S	O	F
c.	Support Staff	N	S	O	F
d.	Principal	N	S	O	F
e.	Other Administrators	N	S	O	F
f.	Students	N	S	O	F
g.	Parents	N	S	O	F
h.	Others:				
	_____	N	S	O	F
	_____	N	S	O	F

COMMENTS/EXAMPLES

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

YOUR INTERACTION ACROSS THE NETWORK

5. With whom are you "networking?" With which groups do you interact and how often? Please circle the response that most nearly matches your actions.

N Not at all
S Seldom (a couple of times per semester)
O Occasional (about once a month)
F Frequent (more than three times a month)

a. Schools with OERI Responsibilities (i.e., your school, the MIL Schools, Fairdale High, Marshalltown, Metro High)	N	S	O	F
b. Other Network Schools (e.g., Learning Labs, new MIL Consortia)	N	S	O	F
c. Researchers/Facilitators (e.g., Selden, Obermeyer, et al)	N	S	O	F
d. NEA Center-Related Staff (e.g., Shari, Net-Support, Sylvia, Techsupport, Bob)	N	S	O	F
e. IBM Staff (e.g., Trafton, Gillan, Gaudreau)	N	S	O	F
f. Others (specify)_____	N	S	O	F

6. Please note on the cover page of this survey the number of messages sent from your workstation for the 7 months following Boca I. Please estimate the percentage of those messages that went to the following groups:

a. Schools with OERI responsibilities. _____%
(i.e., your school, the MIL Schools, Fairdale High, Marshalltown, and Metro High)

b. Other Network Schools _____%
(e.g., Learning Labs, new MIL Consortia)

c. Researchers/Facilitators _____%
(e.g., Selden, Obermeyer, et al)

d. NEA Center-Related Staff _____%
(e.g., Shari, Net-Support, Sylvia, Techsupport, Bob)

e. IBM Staff _____%
(e.g., Trafton, Gillan, Gaudreau)

f. Others (specify)_____ _____%

7. Indicate the two groups to which you sent the highest percentage of messages by circling a letter below (letters correspond with question 6 above). Circle in the list under each the nature of those messages.

a b c d e f	a b c d e f
(Group with Highest %)	(Group with Next Highest %)
a. professional advice	a. professional advice
b. requesting information	b. requesting information
c. personal/social interchange	c. personal/social interchange
d. scheduling an event	d. scheduling an event
e. other:_____	e. other:_____
f. other:_____	f. other:_____

8. What is the reason(s) that you would send a message instead of a paper? Circle all that apply:

a. Content is Private

b. Content is not of Broad Interest

c. Respond in Form Received
(i.e., initiator used message
format, therefore I respond that way)

d. Habit

e. Unsure of What Should be a Message,
What Should be a Paper

f. Other: _____

g. Other: _____

INTERACTIONS BETWEEN RESEARCHERS AND PRACTITIONERS

9. Describe the interactions occurring between practitioners on the Network. Please discuss the relationships as they are now, not how you think they should be.

10. Describe the interactions occurring between practitioners and researchers. Please discuss the relationships as they are now, not how you think they should be.

11. How would you describe the relationships between the practitioners and the researchers at the beginning of Boca I, December 1, 1989? Circle all descriptors that you think applied <u>then</u>.

a. uneasiness	g. willing to learn
b. friendliness	h. collegial
c. uncertainty	i. "they are not of my world"
d. mutual respect	j. two camps
e. caring	k. irrelevant
f. Other:_____	l. Other:_____

12. As a result of Boca I and II and the interactions that occurred between the two meetings, there have been changes in the relationships between practitioners and researchers on the Network. How would you characterize those changes? Circle the descriptors that think apply now:

a. uneasiness	g. willing to learn
b. friendliness	h. collegial
c. uncertainty	i. "they are not of my world"
d. mutual respect	j. two camps
e. caring	k. irrelevant
f. Other:_____	l. Other:_____

13. On the cover sheet three issues related to the network are listed. Your responses to the twelve preceding questions will help the Center staff learn more about these issues. Please add other thoughts you have here:

- *Who uses the computer; who uses the ideas/dialogue/information; how is material shared, how has your schools involvement with the Network affected the school?*

_____

_____

_____

_____

_____

- *What are the interactive patterns across schools in the network, with whom are schools interacting, what is the nature of the messages?*

_____

_____

_____

_____

_____

- *What is the nature of the interactions between practitioners and researchers, have they changed, are there further changes in relationships and roles that need to be made?*

_____

_____

_____

_____

_____

Thank you for taking the time to complete survey. We will share the results with you in late Spring.

IBM-NEA SCHOOL RENEWAL NETWORK

SURVEY OF RESEARCHERS

Dear Network Participant:

We want to learn about three matters regarding the Network:

- *Who uses the computer; who uses the ideas/dialogue/information; how is material shared, how has involvement of the schools with the Network affected them?*
- *What are the interactive patterns on the network, with whom are practitioners and researchers interacting, what is the nature of the messages?*
- *What is the nature of the interactions between practitioners and researchers, have they changed, are there further changes in relationships and roles that need to be made?*

Knowing more about the answers to these questions will allow us to improve the network, build a case for continued support of this work, and contribute to better understandings of the usefulness of this endeavor in improving schools; e.g., data collected will be used in this years AERA papers. A survey similar to this one has been sent to the contact person in schools participating in the OERI project. We will combine the information generated by the two sets of surveys.

Before responding to the items on the following pages, verify that the information below is correct. (if incorrect, please strike out and enter corrections.)

If you have questions, contact me at workstation BOB or call 202-822-7926. Please return your completed survey before January 27, 1991 in the enclosed envelope.

Bob McClure

Conference:

Number of Messages Sent and Received, 1989-90

Number of Papers Sent and Received, 1989-90

Contact Person:

USES IN THE SCHOOLS

1. If you have information, please describe what you know about use of the ideas/dialogue/information generated through the network in the schools. We are interested in such issues as who uses the computer, how information is shared, and the effects of the information.

YOUR INTERACTION ACROSS THE NETWORK

2. With whom are you "networking?" With which groups do you interact and how often...

N Not at all
S Seldom (a couple of times per semester)
O Occasional (about once a month)
F Frequent (more than three times a month)

a. Schools with OERI Responsibilities (i.e., the MIL Schools, Fairdale High, Marshalltown, Metro High)	N	S	O	F
b. Other Network Schools (e.g., Learning Labs, new MIL Consortia)	N	S	O	F
c. Other Researchers/Facilitators (including Selden, Obermeyer, et al)	N	S	O	F
d. NEA Center-Related (e.g., Shari, Net-Support, Sylvia, Techsupport, Beverly)	N	S	O	F
e. IBM Staff (e.g., Trafton, Gillan, Gaudreau)	N	S	O	F
f. Others (specify)_____	N	S	O	F

3. Please note on the cover page of this survey the number of messages sent from your workstation for the 1989-90 academic year. Please estimate the percentage of those messages that went to the following groups:

a. Schools with OERI responsibilities. _____%
(i.e., the MIL Schools, Fairdale High, Marshalltown, and Metro High)

b. Other Network Schools _____%
(e.g., Learning Labs, new MIL Consortia)

c. Researchers/Facilitators _____%
(including Selden, Obermeyer, et al)

d. NEA Center-Related _____%
(e.g., Shari, Net-Support, Sylvia, Techsupport, Beverly)

e. IBM Staff _____%
(e.g., Trafton, Gillan, Gaudreau)

f. Others (specify)_____ _____%

4. Indicate the two groups to which you sent the highest percentage of messages by circling a letter below (letters correspond with question 6 above). Circle in the list under each the nature of those messages.

a b c d e f	a b c d e f
(Group with Highest %)	(Group with Next Highest %)
a. professional advice	a. professional advice
b. requesting information	b. requesting information
c. personal/social interchange	c. personal/social interchange
d. scheduling an event	d. scheduling an event
e. other:_____	e. other:_____
f. other:_____	f. other:_____

5. What is the reason(s) that you would send a message instead of a paper? Circle all that apply:

a. Content is Private

b. Content is not of Broad Interest

c. Respond in Form Received
(i.e., initiator used message format, therefore I respond that way)

d. Habit

e. Unsure of What Should be a Message, What Should be a Paper

f. Other: _____

g. Other: _____

INTERACTIONS BETWEEN RESEARCHERS AND PRACTITIONERS

6. Describe the interactions occurrring between researchers on the Network. Please discuss the relationships as they are now, not how you think they should be.

7. Describe the interactions occurring between practitioners and researchers. Please discuss the relationships as they are now, not how you think they should be.

8. How would you describe the relationships between the practitioners and the researchers at the beginning of Boca I, December 1, 1989? Circle all descriptors that you think applied then.

a. uneasiness
b. friendliness
c. uncertainty
d. mutual respect
e. caring
f. Other:_____
g. willing to learn
h. collegial
i. "they are not of my world"
j. two camps
k. irrelevant
l. Other:_____

9. As a result of Boca I and II and the interactions that occurred between the two meetings, there have been changes in the relationships between practitioners and researchers on the Network. How would you characterize those changes? Circle the descriptors that you think apply now:

a. uneasiness
b. friendliness
c. uncertainty
d. mutual respect
e. caring
f. Other:_____
g. willing to learn
h. collegial
i. "they are not of my world"
j. two camps
k. irrelevant
l. Other:_____

10. On the cover sheet three issues related to the network are listed. Your responses to the ten preceding questions will help the Center staff learn more about these issues. Please add other thoughts you have here:

o *Who uses the computer; who uses the ideas/dialogue/information; how is material shared, how has your schools involvement with the Network affected the school?*

_____

_____

_____

_____

_____

- *What are the interactive patterns across schools in the network, with whom are schools interacting, what is the nature of the messages?*

_____

_____

_____

_____

_____

- *What is the nature of the interactions between practitioners and researchers, have they changed, are there further changes in relationships and roles that need to be made?*

_____

_____

_____

_____

_____

Thank you for taking the time to complete survey. We will share the results with you in late Spring.